**[The Complete]** Management Solution
For Your Network

PRODUCT MANUAL

# ManageWise® 2.6

## NetWare LANalyzer® Agent™ 1.21
## Installation and Administration Guide

ManageWise™
MANAGEMENT SOFTWARE

Novell®

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# Contents

chapter 1

# Installing the NetWare LANalyzer Agent Software

The NetWare® LANalyzer® Agent™ product is a distributed network analyzer that complements the ManageWise® software. While other ManageWise agents collect data about specific network nodes such as servers or hubs, NetWare LANalyzer Agent observes the interaction among these nodes on a specific LAN segment. The agent is installed on a NetWare server.

NetWare LANalyzer Agent 1.21 operates with NetWare 3.x, NetWare 4.x and NetWare 5.0.

The following topics are discussed in this chapter:



## About NetWare LANalyzer Agent

The NetWare LANalyzer Agent component of the ManageWise product family is a distributed analysis tool for large network segments. NetWare LANalyzer Agent monitors all the network segments connected to the NetWare server on which it runs. You can use NetWare LANalyzer Agent to monitor multiple network segments.

NetWare LANalyzer Agent monitors the network segment for problems, such as high network utilization, communication errors, or duplicate IP addresses. When any error condition is detected, the agent sends an alarm (also called a *trap*) to the ManageWise Console.

To monitor all your network segments from the ManageWise Console or from a third-party Simple Network Management Protocol (SNMP)-based network management station, you must install the NetWare LANalyzer Agent software on a NetWare 3.x, NetWare 4.x, or NetWare 5.0 server for each segment you want to monitor.

You need only one NetWare LANalyzer Agent on each network segment you want to monitor. A single ManageWise Console can manage all NetWare LANalyzer Agent software on your network. You can also have additional ManageWise Consoles manage specific network segments.

### Functionality Added to ManageWise

NetWare LANalyzer Agent adds the following functionality to ManageWise:

- Discovers all the nodes on each segment that it monitors, regardless of the network protocol in use
- Monitors the performance on the segment and provides the ManageWise Console with dynamic performance data for one or more segments to which the NetWare server is attached
- Makes it easy to set alarm thresholds on many useful variables for proactive network management
- Captures all or selected packets to assist you in diagnosing and resolving problems on the monitored networks

## Installation Requirements

To install NetWare LANalyzer Agent, the following requirements must be met:


- A NetWare server with NetWare 3.x, NetWare 4.x, or NetWare 5.0 installed and configured for an Ethernet, token ring, or FDDI network.
- ManageWise 2.6 installed on the NetWare server.
- The RAM requirement for a NetWare LANalyzer Agent server is

  *N/2 + 1.5 MB*

where *N* is the number of monitored adapters. For example, if the agent monitors two adapters, it requires 2.5 MB of RAM.

- At least 10 MB of free disk space on the server to install the agent.
- To capture one year of trend data, at least 25 MB of free disk space on the server for each monitored Ethernet adapter, and at least 50 MB of disk space on the server for each monitored token ring adapter. Each monitored FDDI adapter will require at least 50 MB of disk space on the server.
- The ManageWise Console must be able to access the NetWare server over the network.
- LAN drivers already installed on the NetWare server.
- Promiscuous mode LAN drivers for the network adapters.

  NetWare LANalyzer Agent requires promiscuous mode drivers to monitor segment traffic and capture packets addressed to various nodes on each segment.

## Installing the NetWare LANalyzer Agent Software

Installing NetWare LANalyzer Agent software consists of four main tasks:


- Installing the NetWare LANalyzer Agent files
- Reviewing the AUTOEXEC.NCF file

  Review this file to make sure the changes made during installation are correct for your network configuration.
- Reconciling the AUTOEXEC.NCF and NMSBASE.NCF files

  You must ensure that these two NCF files are consistent.
- Bringing down and restarting the server

  Once you install the NetWare LANalyzer Agent software, you must restart the server. If your server is not configured to restart automatically when brought down, you must restart it at the server console.

# Reviewing the AUTOEXEC.NCF File

The installation procedure for NetWare LANalyzer Agent 1.21 does *not* modify your AUTOEXEC.NCF file. If you were running a previous version of the agent before you installed NetWare LANalyzer Agent 1.21, you do not need to modify the file. You need only bring down and restart the server to enable the new version of NetWare LANalyzer Agent.

However, if you specifically "commented-out" the commands in the AUTOEXEC.NCF file that automatically load the agent, you must modify the file accordingly. In addition, Novell recommends that you compare your AUTOEXEC.NCF and NMSBASE.NCF files to make sure they are consistent. See "Reconciling the NCF Files" on page 6 for details.

To check your AUTOEXEC.NCF file, do the following:

Procedure

1. **If you have not already done so, enter the LOAD INSTALL command at the server prompt.**

   The Installation Options menu is displayed.

   - **Under NetWare 3.x**, select *System Options*.

     The Available System Options menu appears.

   - **Under NetWare 4.x**, select *NCF files options*.

   The Available NCF Files Options menu appears.

2. **Select *Edit AUTOEXEC.NCF File*.**

   The AUTOEXEC.NCF file is displayed.

   Figure 1-1 illustrates the statements in the AUTOEXEC.NCF file that are pertinent to NetWare LANalyzer Agent.

**Figure 1-1**
**NetWare LANalyzer Agent Statements in the AUTOEXEC.NCF File**

```
# $NMSBASE$ DO NOT DELETE THIS LINE
# NetWare Management System installation has
# created the following NMSBASE.NCF file.
# Review the load sequence of the NLMs
# in NMSBASE.NCF.
# Make sure that the NLMs loaded by NMSBASE.NCF
# do not conflict with your existing setup.
# Uncomment the following lines after review:
#         Statement 1

NMSBASE.NCF
LOAD SNMP verbose Control=  Trap=
.
# $LANZ$ DO NOT DELETE THIS LINE
# NetWare LANalyzer Agent installation has created
# the following to load NetWare LANalyzer Agent.
# Uncomment the following 2 lines after review:
#        Statement 2

SEARCH ADD SYS:LANZ
LANZ.NCF
```

As shown in Figure 1-1, when a previous version of NetWare LANalyzer Agent 1.21, the Installation utility added two sets of statements. In this figure, the statements are uncommented (as they should be to run the agent).

- Statement 1 adds the NMSBASE.NCF load statement, and also loads SNMP.

  SNMP must be loaded with the *verbose*, *Control*, and *Trap* parameters as shown, so that ManageWise can retrieve information from the server.

Note

There must be two spaces after the Control= parameter in order for ControlCommunity to accept any community name.

- Statement 2 adds the SYS:LANZ directory to the search path and adds a statement to load the LANZ.NCF file.

**3. If you need to uncomment or modify any of these statements in your current AUTOEXEC.NCF file, you can do the changes.**

4. **When you have verified that the entries are correct, save the changes.**

5. **Exit the Installation utility.**

   Press <Esc> until you are asked whether you want to exit the Installation utility. Select *Yes* to exit the utility.

## Reconciling the NCF Files

You must ensure that the AUTOEXEC.NCF and NMSBASE.NCF files are consistent. To do so, follow these steps:


1. **Log in to the server on which NetWare LANalyzer Agent is installed.**

2. **Change directories to the SYS:\SYSTEM directory.**

3. **Print the AUTOEXEC.NCF and NMSBASE.NCF files.**

4. **Compare the files and make the following changes, as necessary.**

   4a. **If there are duplicate entries with different values or parameters, reconcile them and set one value for both files.**

   4b. **Remove any duplicate statements from one of the files.**

   4c. **Confirm the order of the LOAD statements in the NMSBASE.NCF file to ensure consistency with the system configuration.**

5. **When you finish reconciling the NCF files, save your changes and log out of the server.**

# Enabling the NetWare LANalyzer Agent Installation

For the changes you have made to take effect and to enable the NetWare LANalyzer Agent installation, you must bring down the server and then restart it.

## Bringing Down and Restarting a NetWare 4.x Server

To bring down and restart a NetWare 4.x server, follow these steps:


1. **At the NetWare system console prompt, enter the following command:**

   **`DOWN`**

   The server is brought down safely; you return to the server prompt.

2. **At the server prompt, enter this command:**

   **`RESTART SERVER`**

   The NetWare 4.x server starts up, and NetWare LANalyzer Agent is running.

## Bringing Down and Restarting a NetWare 3.x Server

To bring down and restart a NetWare 3.x server, follow these steps:


1. **At the NetWare system console prompt, enter the following command:**

   **`DOWN`**

   The server is brought down safely.

2. **To return to DOS, enter this command:**

   **`EXIT`**

   You return to the DOS prompt.

3. **At the DOS prompt, enter this command:**

   **SERVER**

   The NetWare 3.x server starts up, and NetWare LANalyzer Agent is running.

## Deinstalling NetWare LANalyzer Agent Software

Depending on your network configuration, you might have to deinstall NetWare LANalyzer Agent to make room for another agent or to upgrade to a more recent version of an agent.

To deinstall NetWare LANalyzer Agent, follow these steps:


1. **From the server console prompt, unload the currently installed version of the agent by entering the following command:**

   **ULANZ**

2. **Enter the following command:**

   **LOAD LANZUNDO**

When you deinstall NetWare LANalyzer Agent, the deinstallation does the following:

- Removes all the files in the SYS:\LANZ directory and the directory itself.
- Removes the LANZ.NCF and ULANZ.NCF files from the SYS:\SYSTEM directory.
- Removes the NetWare LANalyzer Agent statements from the AUTOEXEC.NCF file.
- Deletes the long-term trend data file from the GTREND directory.

chapter 2

# Improving NetWare LANalyzer Agent Performance

The measures described in this chapter can improve the performance of your NetWare® LANalyzer® Agent™ server.

You can configure the NetWare LANalyzer Agent functions described in this chapter by setting the parameters in the LANZ.NCF file.

The following topics are discussed in this chapter:

# Contents of the LANZ.NCF File

The LANZ.NCF file loads all the NetWare Loadable Module™ (NLM™) software required for NetWare LANalyzer Agent operation. The LANZ.NCF file resides in the SYS:SYSTEM directory.

Example 2-1 displays the complete text of the default LANZ.NCF file.

**Example 2-1**
**continued**
**LANZ.NCF File**

```
#
#                          NetWare LANalyzer Agent
#                               Version 1.21
#
#--------------------------------------------------------------------------
# LANZ.NCF: NetWare LANalyzer Agent Load File
#
# This NCF file is created by the NetWare LANalyzer Agent install program.
# It is used to load the NetWare Loadable Module files that make up NetWare
# LANalyzer Agent.
#
# WARNING:   You should not modify this file unless you need to change
#            one of the configuration parameters documented below.
#            Other changes to this file are not recommended.  Should you
#           damage this file, you must reinstall NetWare LANalyzer Agent.
#
# NOTE:      To enable or disable the monitoring of network adapters
#            by NetWare LANalyzer Agent, use the LANZCON utility
#            as described in the NetWare LANalyzer Agent Installation
#            and Administration guide.
#
#--------------------------------------------------------------------------
# Load Parameter Descriptions
#
# load LANZSU  debug=1
#
# debug=1    Turns on the LANZ Control screen to see the transactional
#            messages from the NetWare LANalyzer Agent.
#
# load LANZMEM bound=KB age=HHH
#
# bound=KB   This is the upper limit on memory that can be allocated
#            dynamically by the NetWare LANalyzer Agent.
#
#            Increasing this number allows you to create larger packet
#            capture buffers and maintain data for inactive stations
#            for a longer period of time.
#
#            Decreasing this value reduces the amount of memory that
#            can be used by NetWare LANalyzer Agent.  This leaves more
#            memory for the other server tasks.
#
#            NetWare LANalyzer Agent automatically purges data for
#            inactive stations as the memory boundary is approached.
#            This allows NetWare LANalyzer Agent to adjust to
```

**Example 2-1** *continued*

**continued**

**LANZ.NCF File**

```
#

#            the memory that is available to it dynamically.
#
#            If the boundary is low, purging occurs frequently, saving
#            only data for stations that have been recently active on
#            the network.  If this happens, a message appears on the
#            system console indicating that not enough memory has been
#            allocated to NetWare LANalyzer Agent.
#
#            KB is the memory boundary in kilobytes.
#
#            Initial value: Set by the installation program
#                           based on memory usage
#
#            Minimum recommended value:      512
#
#            Maximum recommended value:      75% of free server memory
#                                            when NLM files are loaded
#
#           Default value:                  If bound=KB is not specified,
#                                            it defaults to 2048.
#
# age=HHH    NetWare LANalyzer Agent purges data for stations that have
#            not been active on the network recently. This parameter
#            controls how long data for inactive stations is maintained.
#
#            Memory that is used by the station table is not available
#            for other uses, such as capturing packets.  Reducing the
#            AGE value tends to increase the amount of memory
#            available for capturing packets.
#
#            If you cannot allocate capture buffers that are large,
#            you may need to reduce the AGE value.
#
#            HHH is the inactivity period, in hours, before station data
#            is purged.
#
#            Minimum recommended value:      1
#
#            Default value:                  If age=HHH is not specified,
#                                            it defaults to 168  (1 week)
#
# load LANZDI level=1
#
# level=1    It indicates that the LANZDI will stop receiving packets
#            when CPU utilization gets high.
#
#            Default is OFF. LANZDI will continue to receive packets even
#            when CPU utilization gets high.
#
# load LANZSM topn=N
#
# topn=N     The number of concurrent sorts of top N nodes that
```

**Example 2-1** *continued*
**continued**
**LANZ.NCF File**

```
#
#            NetWare LANalyzer Agent supports for each network adapter.
#
#            Recommended value: 4
#            Minimum value:     2
#            Maximum value:     10
#
# load LANZTR  poll = 1
#
# poll=1     Polls token ring source-routed bridges.
#
# load LANZCTL trapreg=1
#
# trapreg=1  Causes SNMP traps to be sent to management consoles
#            advertising themselves on the network, as well as stations
#            listed in SYS:\ETC\TRAPTARG.CFG.  Omitting this parameter
#            or setting it to 0 causes traps to be sent only to those
#            stations listed in the SYS:\ETC\TRAPTARG.CFG file.
#
#-------------------------------------------------------------------------
load gtrend.nlm \dvolname:\GTREND
load lanzsu.nlm
load lanzmem.nlm bound = 2048 AGE = 168
load lanzlib.nlm
load lanzdi.nlm
load lanzael.nlm
load lanzhis.nlm
load lanzfcb.nlm
load lanzsm.nlm topn = 4
load lanztr.nlm
load lanzfddi.nlm
load lanzctl.nlm trapreg = 1
```

# Modifying the LANZ.NCF File

The sections below describe how to modify the parameters of the commands in the LANZ.NCF file to configure NetWare LANalyzer Agent functions.

To make changes in the LANZ.NCF file and modify the NetWare LANalyzer Agent configuration, use the following general procedure:


1. **Open the LANZ.NCF file with a text editor.**
2. **Insert or modify the appropriate parameter as shown, and save the file.**
3. **Unload and reload NetWare LANalyzer Agent as described in “Activating Changes in the LANZ.NCF File” on page 17.**

## Turning on the LANZ Control Screen

The LANZ Control screen reports significant events for NetWare LANalyzer Agent.

To turn on the LANZ Control screen, insert the DEBUG parameter to the LOAD LANZSU.NLM statement as shown in the following statement:

```
LOAD LANZSU.NLM DEBUG=1
```

The default setting turns off the LANZ Control screen by omitting the DEBUG parameter.

## Disabling Packet Capture

You might want to disable the NetWare LANalyzer Agent packet capture function for security reasons to prevent others from observing sensitive data captured in the packets sent on the network segment.

To disable the NetWare LANalyzer Agent packet capture function, follow these steps:

**Insert a comment mark ( # ) as the first character in the following statement:**

```
LOAD LANZFCB.NLM
```

If you are interested in controlling packet capture during high levels of traffic rather than disabling packet capture entirely, see the next section, “Setting Packet Flow Control.”

## Setting Packet Flow Control

NetWare LANalyzer Agent typically operates in promiscuous mode, receiving all packets on the network. However, if server utilization is high and performance becomes degraded, you can set the LEVEL parameter to 1, which configures the agent to yield when server traffic is high, and then automatically resume operation in promiscuous mode when the traffic level returns to normal.

The default is not to specify the LEVEL parameter at all, which allows continuous operation in promiscuous mode.

To set packet flow control, use the LEVEL parameter setting shown in the following statement:

```
LOAD LANZDI LEVEL=1
```

## Setting the Upper Limit of Available Memory

The BOUND parameter sets the upper limit of available memory that can be allocated dynamically to NetWare LANalyzer Agent.

The value of the BOUND parameter is measured in kilobytes. The default value is 2048 KB. The minimum recommended value is 512 KB. The maximum recommended value is 75 percent of the memory that is available after all NLM files are loaded.

You might receive the message, `Insufficient memory available for NetWare LANalyzer Agent`, in the following situations:

- The server has too little memory.
- The server has sufficient memory, but the memory is not available to NetWare LANalyzer Agent.
- You requested a packet capture buffer that is too large, and the agent grants you less memory than requested.

In each of these cases, Novell recommends that you increase the value of the BOUND parameter and add more RAM to your NetWare server.

To change the value of the BOUND parameter, edit the parameter with the appropriate value in the following statement in the LANZ.NCF file:

```
LOAD LANZMEM BOUND=2048 AGE=68
```

## Purging Data from Server Memory

NetWare LANalyzer Agent holds its data in server memory. You can control the amount of data held in memory by setting the value of the AGE parameter. When data reaches the “age” specified in the parameter, the data is purged from memory.

The value of the AGE parameter is measured in hours. The default value is 168, which is one week. The minimum recommended value is one hour.

Setting the AGE parameter prevents old conversation and node data from consuming excessive memory. This is of concern primarily on large, bridged networks.

Novell recommends that you lower the AGE parameter if you receive the message, `Insufficient memory available for NetWare LANalyzer Agent`, and you have allocated sufficient memory for the agent.

Having insufficient memory is not harmful to the agent or the server. NetWare LANalyzer Agent can run indefinitely even when it is not satisfied with the memory allocated to it.

To modify the amount of data held in server memory, change the value of the AGE parameter in the following LANZ.NCF file statement:

```
LOAD LANZMEM BOUND=2048 AGE=168
```

## Sorting Concurrent Top Stations

NetWare LANalyzer Agent sorts stations whenever the top eight graphs on the Network Dashboard™ window, the Stations window, or both are displayed by the ManageWise® Console. The sorts are independent of each other and can be computed on the basis of different statistics.

Because each of the sort computations uses server CPU cycles, Novell recommends that you limit the number of concurrent computations NetWare LANalyzer Agent can support.

The TOPN parameter sets the number of concurrent sorts of topN nodes that NetWare LANalyzer Agent can support for each network adapter.

To set the number of concurrent sort computations per network adapter, set the TOPN parameter in the following statement:

```
LOAD LANZSM TOPN=n
```

The default value of the TOPN parameter is 4. The minimum value is 2. The maximum value is 10.

## Sending Alarms to ManageWise Consoles Automatically

NetWare LANalyzer Agent can automatically send SNMP alarms (sometimes referred to as *SNMP traps*) to ManageWise Consoles or other nodes on the network in the following configurations:

- NetWare LANalyzer Agent receives the service advertising protocol (SAP) packets sent by one or more ManageWise Consoles
- The ManageWise Console or other node is listed in the server's TRAPTARG.CFG file

  The TRAPTARG.CFG file is stored in the SYS:\ETC directory. The file provides instructions in its use. You can edit the file with any ASCII text editor.

To enable alarms to be sent automatically, add the TRAPREG parameter setting as shown in this LANZ.NCF file statement (this is the default):

```
LOAD LANZCTL TRAPREG=1
```

If you omit the TRAPREG parameter or set its value to 0 (zero), the agent sends alarms only to ManageWise Consoles listed in the TRAPTARG.CFG file.

## Polling Source Route Bridges

To control source route bridge polling on token ring networks, use the POLL parameter as shown in the following statement:

```
LOAD LANZTR POLL=1
```

For the POLL parameter, 1 = On and 0 = Off.

Setting the POLL parameter to 1 polls source routed bridges once every second. (You cannot change the polling rate.) The default is On.

To turn off this function, set the POLL parameter to 0:

```
LOAD LANZTR POLL=0
```

The default is to omit the POLL parameter. Also, the LOAD LANZTR statement is commented out on systems that do not have a token ring adapter installed.

## Activating Changes in the LANZ.NCF File

To activate the changes you make in the LANZ.NCF file, save the file and then unload and reload NetWare LANalyzer Agent by issuing the following commands at the server prompt:

**`ULANZ`**

The ULANZ command unloads NetWare LANalyzer Agent.

**`LANZ`**

The LANZ command reloads the agent.

chapter 3

# Using the NetWare LANalyzer Agent Console Utility

The NetWare® LANalyzer® Agent™ 1.21 product provides a Console utility (LANZCON.NLM) that performs three main tasks:

- Enables or disables network monitoring by the selected network adapters
- Provides a source of detailed troubleshooting information
- Resolves a residual entry (for example, a Host TopN entry created by an ManageWise® Console that was terminated unexpectedly)

When you install NetWare LANalyzer Agent, LANZCON.NLM is installed automatically in the SYS:LANZ directory.

The following topics are discussed in this chapter:

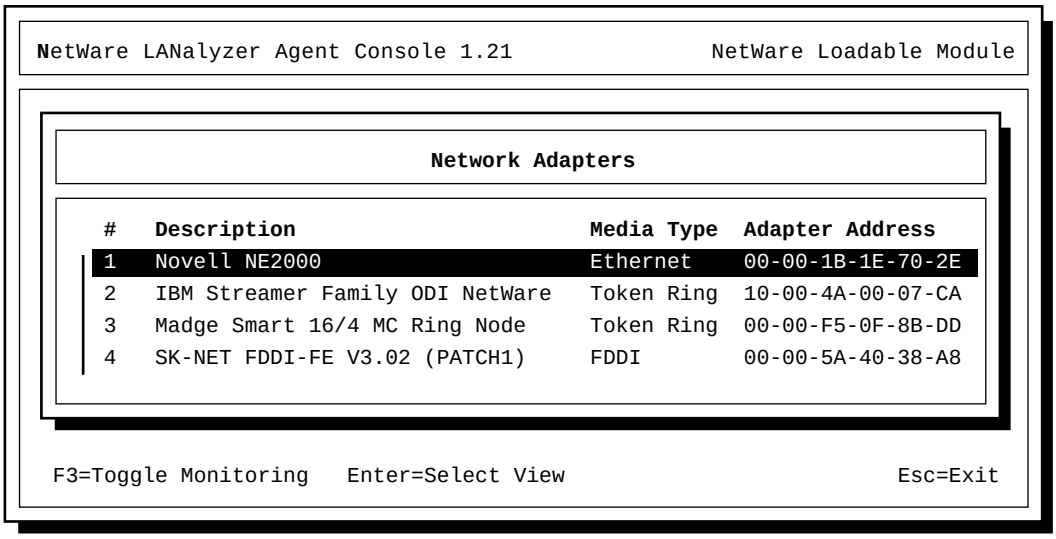
# Loading the NetWare LANalyzer Agent Console Utility

To use LANZCON.NLM, enter the following command at the NetWare console prompt:

```
LOAD LANZCON
```

LANZCON.NLM is loaded, and it displays the Network Adapters screen (see Figure 3-1). The Network Adapters screen displays summary information about the network adapters that are currently installed on the server.

**Figure 3-1**
**Network Adapters Screen**




The information displayed for each network adapter includes the following:

**Number ( # ).** The network adapter entry number in the network interface table.

**Description.** A brief description of the network adapter.

**Media Type.** The type of network connected to the network adapter—token ring, Ethernet, or FDDI.

**Adapter Address.** The physical address of the network adapter.

# Enabling or Disabling Network Adapter Monitoring

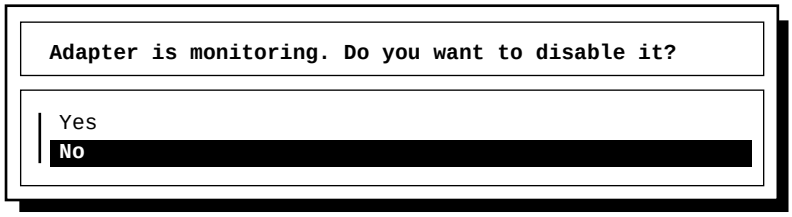
You can enable or disable monitoring of a selected network adapter.

To enable or disable monitoring, follow these steps:

1. **From the Network Adapters screen, use the arrow keys to highlight the appropriate adapter, then press** <F3>**.**

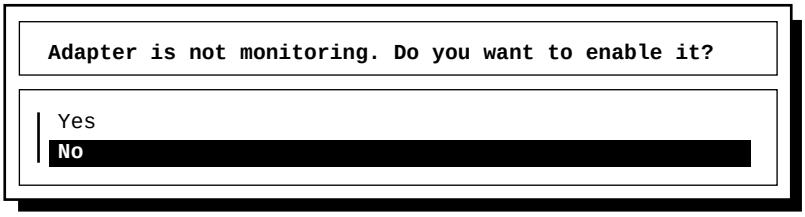
   u If the selected adapter is currently monitoring an Ethernet, token ring, or FDDI network, the console displays the screen shown in Figure 3-2.

**Figure 3-2**
**Adapter Is Monitoring Screen**




   u If the selected adapter is not monitoring an Ethernet, token ring, or FDDI network, the console displays the screen shown in Figure 3-3.

**Figure 3-3**
**Adapter Not Monitoring Screen**



2. **Select *Yes* or *No*, as appropriate, to enable or disable monitoring by the network adapter.**

   If you disable monitoring, all LAN analysis data for the selected adapter is deleted.

## Viewing Network Adapter Information

You can view more detailed information about the items being monitored by each network adapter listed.

Important In the SMP environment on the NetWare 4.x platform, LANZ agent cannot monitor more than one adapter.

To bring up detailed information for network adapter items, follow these steps:

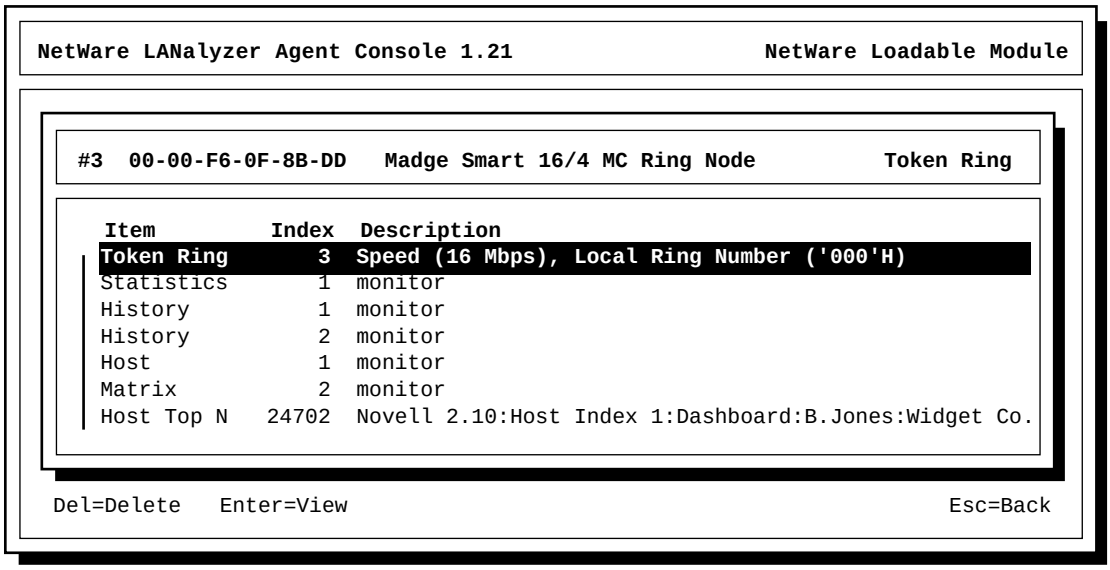
1. **From the Network Adapters screen, use the arrow keys to highlight the adapter of interest, then press** <Enter>**.**

   The LANZCON utility displays the Select Information to View menu.

2. **Select *Show Adapter Items*.**

   The LANZCON utility displays the Network Adapter Items screen. The Network Adapter Items screen displays all the items related to the selected network adapter. Figure 3-4 shows an example for a token ring adapter.

**Figure 3-4**
**Network Adapter Items Screen**




As shown in Figure 3-4, the screen for a token ring adapter includes the information from the Novell Token Ring RMON MIB. For more information, see “Viewing the Agent Items Status” on page 24.

To return to the Select Information to View menu, press <Esc>.

The following information is provided for the selected adapter:

**Item.** The types of items that are currently being monitored by the selected adapter. Figure 3-4 shows a set of typical items consisting of *Token Ring*, *Statistics*, *History*, *Host*, *Matrix*, and *Host TopN*. NetWare LANalyzer Agent monitors these items by default. In Figure 3-4, the *Host Top N* item, indicating the list of the busiest nodes, has been added by a user. You can add other items to this display from the ManageWise Console, depending on your configuration.

You can select any of these items for more information about each topic.

To view the values for the selected item, highlight the desired item, then press <Enter>. See the following sections for more examples of the screens.

**Index.** The entry number of the displayed item in the list of all the items of the same type. The related tables are identified by this index.

**Description.** A textual description of the entry. This column indicates the software entity or user that created the item. The items automatically monitored by NetWare LANalyzer Agent are indicated by *monitor*.

For a token ring network entry, this column shows the media speed and the local ring number.

## Viewing the Agent Items Status

When you select *Show Agent Items* from the Select Information to View menu, LANZCON displays all the items for each network adapter being monitored by NetWare LANalyzer Agent.

To view the agent items status for the selected agent, following these steps:

Procedure

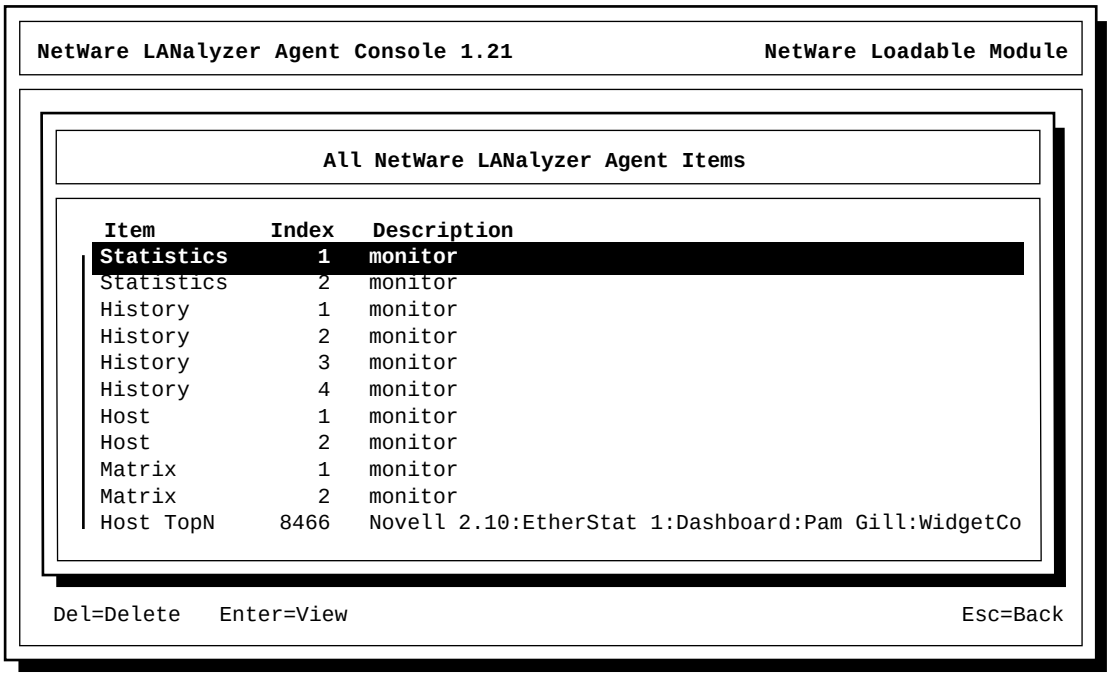
1. **From the Network Adapters screen, press** <Enter>**.**

   LANZCON displays the Select Information to View menu.

2. **Select *Show Agent Items*.**

   The LANZCON utility displays the following screen (see Figure 3-5).

**Figure 3-5**
**All NetWare LANalyzer Agent Items Screen**




The All NetWare LANalyzer Agent Items screen shows all the items related to the agent monitoring the segment. Thus, if you are using multiple adapters to monitor multiple network segments, the screen lists all the items being monitored by the agent.

**Deleting Entries**. You can delete any entry (except the token ring network entry) by selecting the entry, pressing <Delete>, then selecting *Yes* to confirm.

To return to the Network Adapter Items screen, press <Esc>.

The following information is provided for the agent:

**Item.** The types of items available. Figure 3-5 shows a set of typical items consisting of *Statistics*, *History*, *Host*, *Matrix*, and *Host Top N*. Additional items can be displayed, depending on your configuration.

You can select any of these items for more information about each topic.

To view the values for an item, select the desired item and press <Enter>. See the following sections for more examples of the screens.

**Index.** The entry number of the displayed item in the list of all the items of the same type. The related tables are identified by this index.

**Description.** A textual description of the entry. This column indicates the software entity or user that created the item table. The items automatically monitored by NetWare LANalyzer Agent are indicated by *monitor.*

For a token ring network entry, this column shows the media speed and the local ring number.

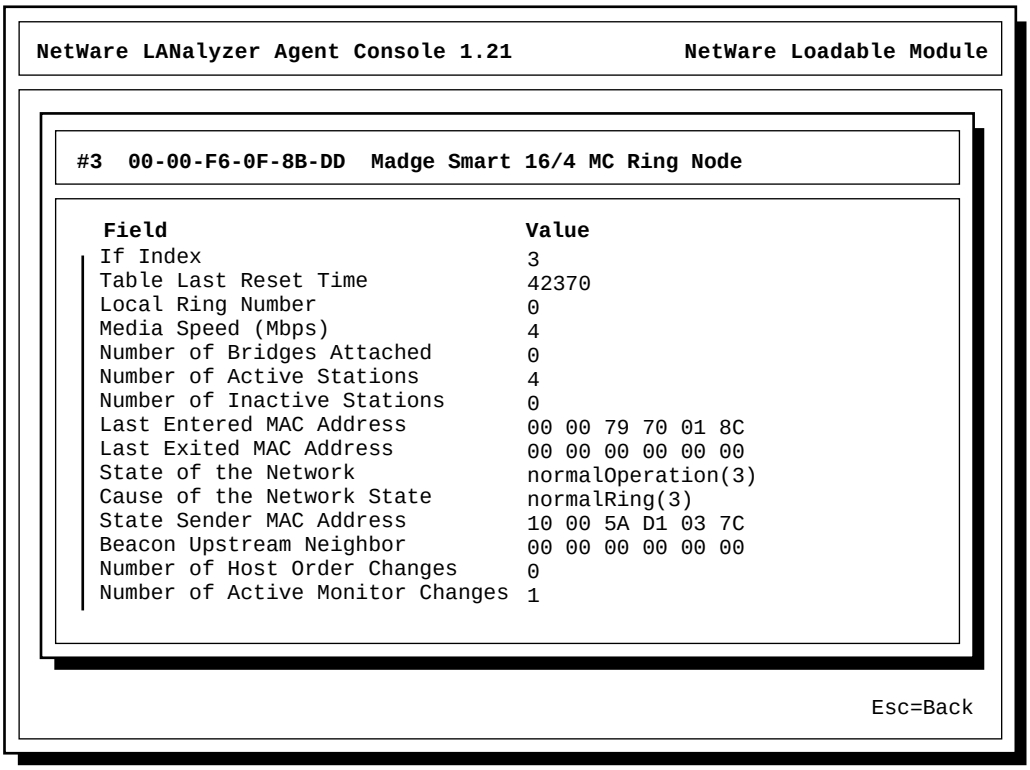
# Accessing Detailed Information About Each Item

This section describes the major categories of information available for both the selected network adapter and NetWare LANalyzer Agent.

## Viewing the Token Ring RMON MIB Information

To view the token ring RMON MIB information, highlight the *Token Ring* item on the Network Adapter Items screen, then press <Enter>. The screen shown in Figure 3-6 is displayed:

**Figure 3-6**
**Token Ring RMON MIB Table Screen**

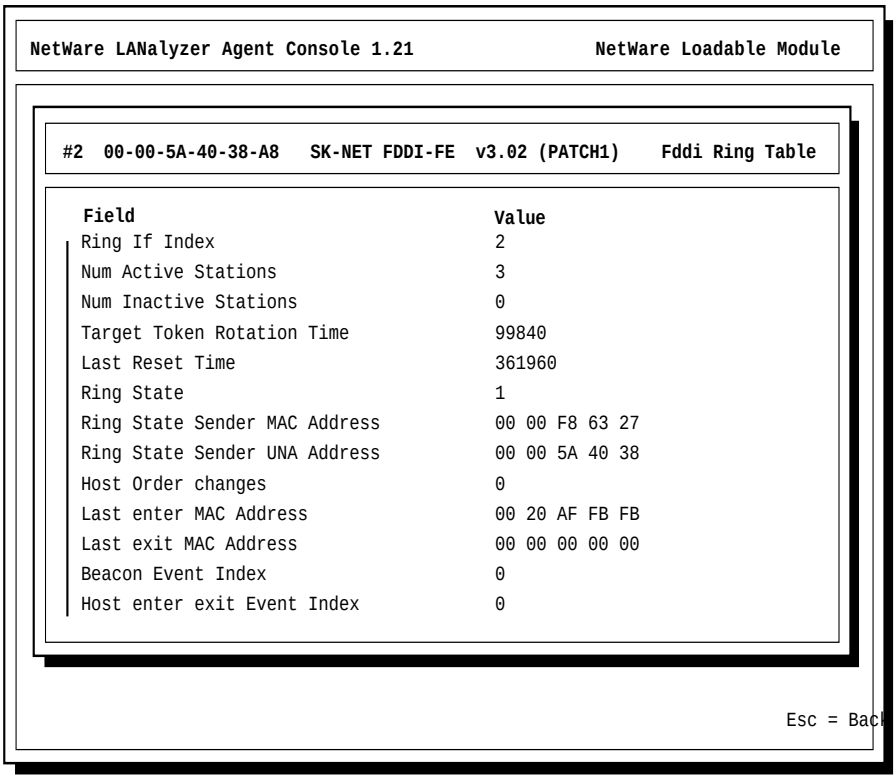



Press <Esc> to exit this screen.

## Viewing the FDDI Ring RMON MIB Information

To view the FDDI ring RMON MIB information, highlight the *FDDI Ring* item on the Network Adapter Items screen, then press <Enter>. The screen shown in Figure 3-7 is displayed:

**Figure 3-7**
**FDDI Ring Table Screen**



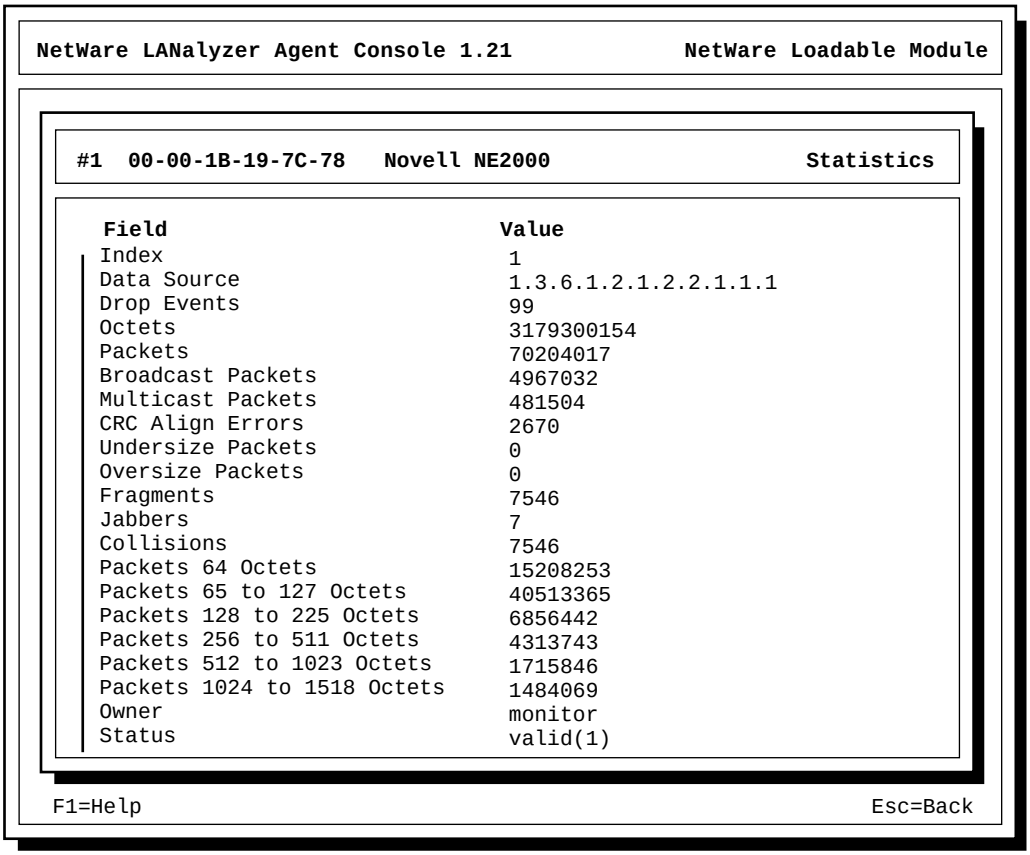

## Viewing Statistics Information

The statistics information presents the basic statistics for each monitored adapter per segment.

To view the statistics information, highlight *Statistics* in the Network Adapter Items screen (see Figure 3-4 on page 23) or the NetWare LANalyzer Agent Items screen (see Figure 3-5 on page 25), then press <Enter>.

For an Ethernet network entry, the LANZCON utility displays the Statistics Information screen shown in Figure 3-8.

**Figure 3-8**
**Statistics Information Screen**




This screen displays the statistical values of the selected network adapter. The display is updated periodically with the latest values for each field.

To exit this screen, press <Esc>.

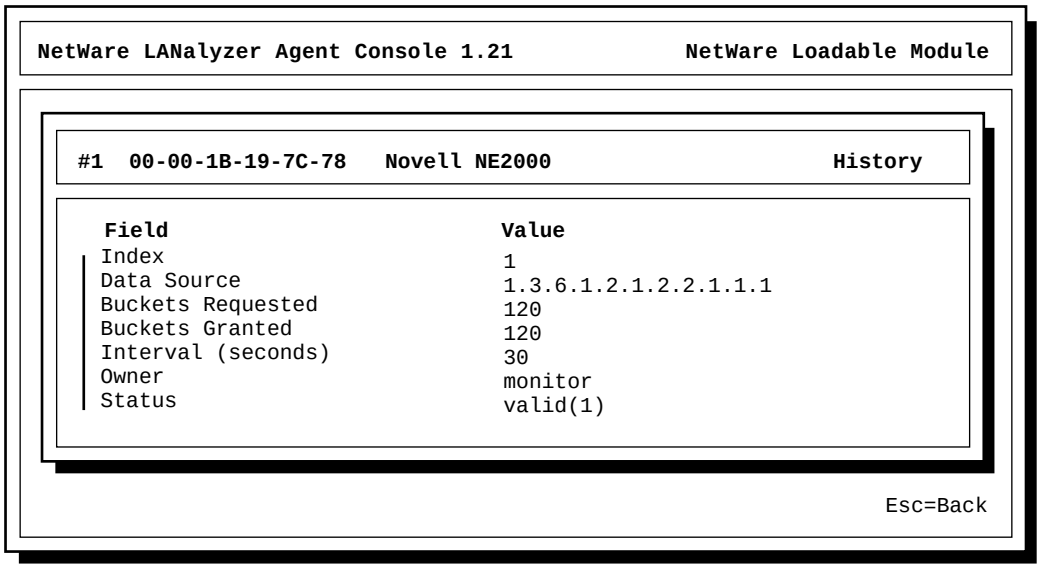
## Viewing History Information

The history information defines sampling functions for the networks that are being monitored. The History Control table defines a set of samples at a particular sampling interval for a particular network adapter.

To view the history information, highlight *History* in the Network Adapter Items screen (see Figure 3-4 on page 23), or the All NetWare LANalyzer Agent Items screen (see Figure 3-5 on page 25), then press <Enter>.

The LANZCON utility displays the History Information screen.

**Figure 3-9**
**History Information Screen**




To exit this screen, press <Esc>.

The field descriptions are as follows:

**Index.** An integer that uniquely identifies a row in the History Control table.

**Data Source.** Identifies the network adapter and, therefore, the Ethernet, token ring, or FDDI segment that is the source of the data for entries defined by this object.

**Buckets Requested.** The requested number of discrete sampling intervals over which data is to be saved in the portion of the media-specific table associated with this entry.

**Buckets Granted.** The actual number of discrete sampling intervals over which data is to be saved.

**Interval.** The interval, in seconds, over which data is sampled for each bucket. The interval can be set to any number between 1 and 3,600 (one hour). The default interval for past hour is 30 seconds per sample, and the default interval for past day is 30 minutes (or 1,800 seconds) per sample.

The sampling scheme is determined by the buckets granted and the control interval.

**Owner.** The entity that created the item. *Monitor* indicates that the item was created by NetWare LANalyzer Agent.

**Status.** A status of *valid* indicates that the agent is operating normally under the instructions given by the table.

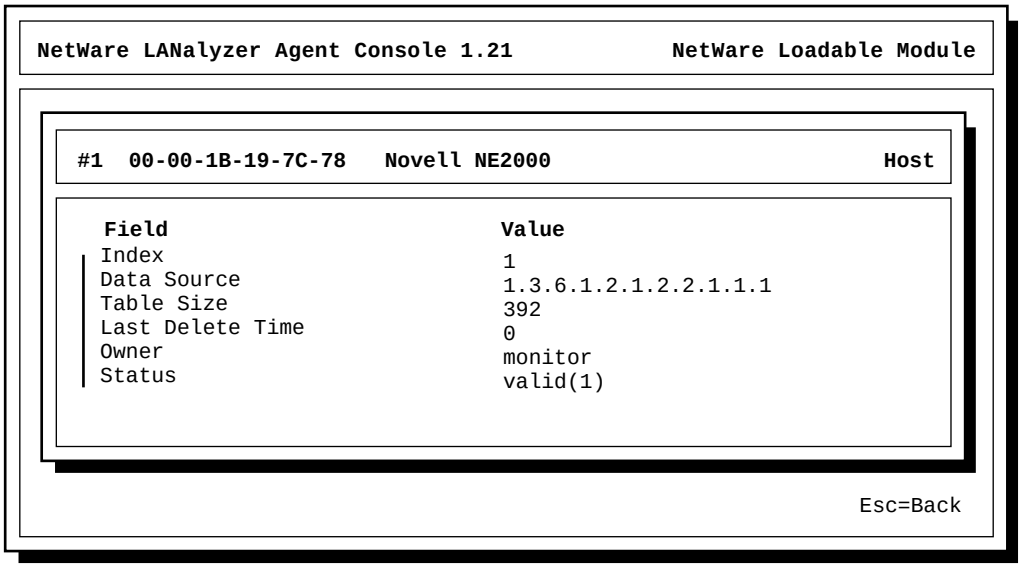
## Viewing Host Information

The host group gathers statistics about specific hosts—or *nodes*—on the LAN. NetWare LANalyzer Agent learns of new nodes on the LAN by observing the source and destination media access control (MAC) addresses in good packets. For each node known to the agent, a set of statistics is maintained.

To view the host (node) information, highlight *Host* in the Network Adapter Items screen (see Figure 3-4 on page 23), or the NetWare LANalyzer Agent Items screen (see Figure 3-5 on page 25), then press <Enter>.

The LANZCON utility displays the Host Information screen shown in Figure 3-10.

Figure 3-10
**Host Information Screen**




The host group consists of three tables: two data tables and one control table. The two data tables are hostTable and hostTimeTable. The control table, hostControlTable, includes the following objects, which correspond to the fields displayed in the Host Information screen:

**Index.** An integer that uniquely identifies a row in the hostControl Table. Each row in the control table refers to a unique network adapter and, thus, a unique segment.

**Data Source.** Identifies the network adapter, and therefore, the Ethernet or token ring, or FDDI segment that is the source of the data for entries defined by this object.

**Table Size.** The number of rows in the hostTable associated with this row.

**Last Delete Time.** The value of the sysUpTime MIB object that corresponds to the last time an entry was deleted from the portion of the hostTable associated with this row. The value is 0 if no deletions occurred.

**Owner.** Indicates the entity or user that created the item. *Monitor* indicates that the item was created by NetWare LANalyzer Agent.

**Status.** A status of *valid* indicates that the agent is operating normally under the instructions given by the table.

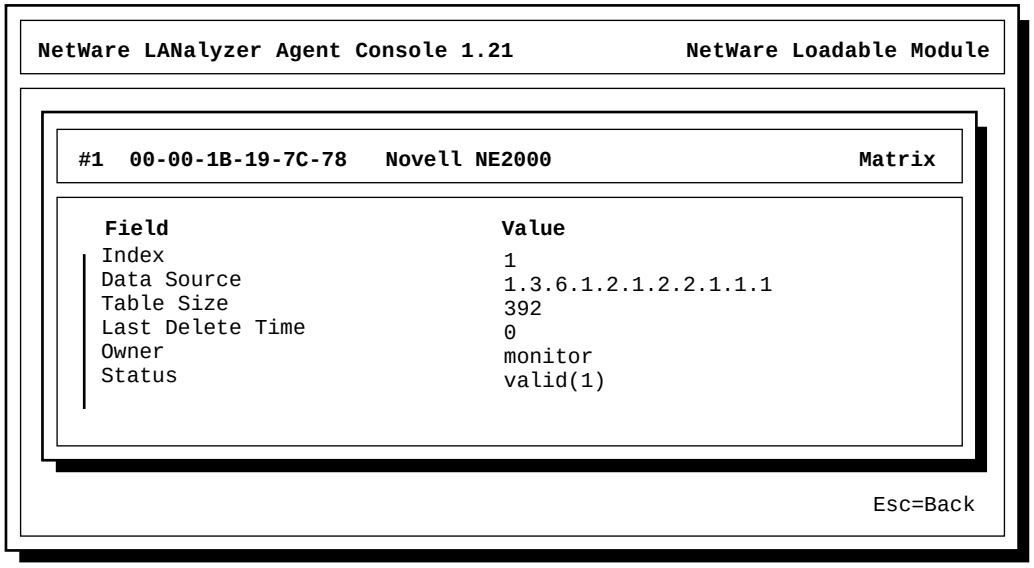
## Viewing Matrix Information

The matrix group records information about the conversations between pairs of nodes on a network segment. The information is stored in the form of a matrix. This method of organization is useful for retrieving specific pairings of traffic information, such as finding out which nodes are making the most use of a server.

To view the matrix information, highlight *Matrix* in the Network Adapter Items screen (see Figure 3-4 on page 23), or the All NetWare LANalyzer Agent Items screen (see Figure 3-5 on page 25), then press <Enter>.

The LANZCON utility displays the Matrix Information screen shown in Figure 3-11.

**Figure 3-11**
**Matrix Information Screen**



The matrix group consists of three tables: two data tables and one control table. The data tables are matrixSDTable and matrixDSTable. The control table, matrixControlTable, includes the following objects, which correspond to the fields displayed in the Matrix Information screen:

**Index.** An integer that uniquely identifies a row in the matrixControl Table. Each row in the control table defines a function that discovers conversations on a particular network and places statistics about them in the two data tables.

**Data Source.** Identifies the network adapter and, therefore, the Ethernet or token ring, or FDDI segment that is the source of the data for entries defined by this object.

**Table Size.** The number of rows in the matrixTable associated with this row.

**Last Delete Time.** The value of the sysUpTime object that corresponds to the last time an entry was deleted from the portion of the matrixTable associated with this row. The value is 0 if no deletions occurred.

**Owner.** Indicates the entity or user that created the item. *Monitor* indicates that the item was created by NetWare LANalyzer Agent.

**Status.** A status of *valid* indicates that the agent is operating normally under the instructions given by the table.

appendix **A**

# Troubleshooting Information

This chapter presents the following information:

- Suggestions and information for troubleshooting the installation
- Messages NetWare® LANalyzer® Agent™ software displays in response to problems encountered when monitoring adapters

## Troubleshooting the Installation

You might encounter a few known problems during or shortly after you install NetWare LANalyzer Agent. This section presents tips for handling these problems. Novell recommends that you also consult the SYS:\LANZ\INSTALL.LOG file for information about the installation.

### Problem 1. Your server abended when you backed it up after installing NetWare LANalyzer Agent.

**Explanation** This problem is not related to the installation process. However, some NetWare LANalyzer Agent files were loaded and probably were open when you backed up the server. Depending on the backup software you use, backing up the LANZ.CFG file when it is open can cause the server to abend.

**Action** Do not back up the LANZ.CFG file when you back up the server.

### Problem 2. After NetWare LANalyzer Agent is installed, the SMART386.LAN driver cannot be loaded.

**Explanation** When you install NetWare LANalyzer Agent, the SMART386.LAN driver is updated with a driver named MADGEODI.LAN. Because the driver name was changed, you need to update the files that load drivers.

**Action** Modify the files that load the adapter drivers to load the MADGEODI.LAN driver.

### Problem 3. After NetWare LANalyzer Agent is installed, the NE3200.LAN driver cannot be loaded.

Explanation When you install NetWare LANalyzer Agent, the NE3200.LAN driver is updated with a driver named NE3200P.LAN. Because the driver name was changed, you need to update the files that load drivers.

Action Modify the files that load the adapter drivers to load the NE3200P.LAN driver.

### Problem 4. After NetWare LANalyzer Agent is installed, the NE2-32.LAN driver cannot be loaded.

Explanation When you install NetWare LANalyzer Agent, the NE2-32.LAN driver is updated with a driver named NE2_32.LAN. Because the driver name was changed, you need to update the files that load drivers.

Action Modify the files that load the adapter drivers to call the NE2-32.LAN driver, and then load the NE2_32.LAN driver.

## Adapter Monitoring Messages

This section lists the messages that NetWare LANalyzer Agent displays when it cannot monitor an adapter. An explanation and a recommended action is provided for each message.

### LANalyzer — Ethernet adapter *[MAC address]* is not monitored because it is a pipelined adapter.

Explanation A *pipelined adapter* is one that begins to send received data to the driver before the entire packet has been received. NetWare LANalyzer Agent cannot support this method of data reception because it must tally all the information in a packet before the information is sent to its destination.

Action If the adapter allows you to switch from pipelined mode to nonpipelined mode, do so. If the adapter cannot switch modes, use a nonpipelined adapter for NetWare LANalyzer Agent transactions. Check the NetWire® bulletin board for information regarding availability of the recommended adapters. You might have to contact your adapter vendor for the appropriate adapter.

### LANalyzer — Ethernet adapter *[MAC address]* is not monitored because the driver does not support promiscuous mode.

Explanation A *promiscuous mode driver* receives all the packets and errors on the network it is attached to. NetWare LANalyzer Agent requires promiscuous mode to

function properly, so the agent does not support nonpromiscuous mode Ethernet or token ring adapters.

Action Install a promiscuous mode driver on the server. Check the NetWire bulletin board for information regarding availability of the latest promiscuous mode drivers. You might have to contact your adapter vendor for the appropriate driver.

### LANalyzer — Token Ring adapter *[MAC address]* is not monitored because it is a pipelined adapter.

Explanation A *pipelined adapter* is one that begins to send received data to the driver before the entire packet has been received. NetWare LANalyzer Agent cannot support this method of data reception because it must tally all the information in a packet before the information is sent to its destination.

Action If the adapter allows you to switch from pipelined mode to nonpipelined mode, do so. If the adapter cannot switch modes, use a nonpipelined adapter for NetWare LANalyzer Agent transactions. Check the NetWire bulletin board for information regarding availability of the recommended adapters. You might have to contact your adapter vendor for the appropriate adapter.

### LANalyzer — Token Ring adapter *[MAC address]* is not monitored because the driver does not support promiscuous mode.

Explanation A *promiscuous mode driver* receives all the packets and errors on the network it is attached to. NetWare LANalyzer Agent requires promiscuous mode to function properly, so the agent does not support nonpromiscuous mode Ethernet or token ring adapters.

Action Install a promiscuous mode driver on the server. Check the NetWire bulletin board for information regarding availability of the latest promiscuous mode drivers. You might have to contact your adapter vendor for the appropriate driver.

### LANalyzer — Token Ring adapter *[MAC address]* is not monitored because the driver does not support raw send.

Explanation NetWare LANalyzer Agent requires an adapter driver that supports the *raw send* feature. An adapter driver that supports raw send allows applications to build both the header and data components of a frame. The driver then receives the packet and sends it to its destination.

Action Install an adapter driver on the server that supports raw send. Check the NetWire bulletin board for information regarding availability of the

recommended drivers. You might have to contact your adapter vendor for the appropriate driver.

### LANalyzer — Adapter *[MAC address]* is not monitored because it is not a supported media type.

Explanation NetWare LANalyzer Agent supports Ethernet, token ring and FDDI, although 100BaseT and 100VG-AnyLAN are considered Ethernet media types. Any other adapter media types are not supported.

Action Use an Ethernet, token ring or FDDI adapter for NetWare LANalyzer Agent operations.

### LANalyzer — Adapter *[MAC address]* is not monitored because NetWare LANalyzer Agent cannot allocate memory.

Explanation NetWare LANalyzer Agent does not have adequate RAM available to it to build the internal data structures required to monitor the adapter.

Action Do one or both of the following: 1) Unload any unnecessary NLM™ files. 2) Add additional memory to your server.

### LANalyzer — Adapter *[MAC address]* is not monitored because the driver's promiscuous mode cannot be turned on.

Explanation The driver is corrupted or the adapter is damaged.

Action Replace the adapter. If the problem persists, call your Novell Authorized Reseller℠ group.

# Index

# I



# L



# M

# N



# P



# R



# S



# T

# U